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JUL 80 H MINDLIN, J F LYNCH DLA900-78-C-1715

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ANNUAL REPORT
METALS AND CERAMICS INFORMATION CENTER

JULY 1980

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J. F. LYNCH, ASSOCIATE MANAGER
BATTELLE-COLUMBUS
Columbus, Ohio

ANNUAL REPORT — CONTRACT DLA900-78-C-1715

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Prepared for

ARMY MATERIALS AND MECHANICS RESEARCH CENTER
Watertown, Massachusetts 02172

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report reviews the continuing operations and development of the Metals and Ceramics Information Center for the period of May 1, 1979 through April 30, 1980. Activity and growth of the Center are discussed in terms of the major work areas: Information, Operations, Products and Services, Service-Charge Program, Marketing, and Management. Future plans for the Center also are included.		

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SUMMARY

The Metals and Ceramics Information Center (MCIC) is one of several technical information analysis centers (IAC's) chartered and sponsored by the Department of Defense (DoD). The objective of the Center is to increase the productivity of scientists, engineers, and technicians engaged in scientific and engineering programs for the DoD. The Center is responsible for the collection, review, analysis, appraisal and summary of the available scientific and technical information and data on selected metals and ceramics and composites containing those materials. The resources and capabilities of MCIC, a full-service IAC, are also available to the technical community at large through an extensive program of products and services.

This second Annual Report on Contract No. DLA900-78-C-1715 covers the program activities for the period 1 May 1979 through 30 April 1980. Operating statistics and contract status reports are provided for the Eighth Quarter and for the complete reporting period. During this 12-month contract period, the Center met its contractual goal for recovery of products and service costs; income was 70 percent of the basic funding (\$755,000). A substantial portion of MCIC's income continues to come from the special studies and tasks undertaken for Federal agencies; 12 studies/tasks were conducted in this report period.

In addition to the information acquisition and processing efforts, technical publications and inquiry services remain the major activities in MCIC's basic program. The Current Awareness Bulletin was continued on a twice-monthly distribution to approximately 5000 technical personnel. The publications completed, reprinted or in process consist of:

- 28 Current Awareness Bulletins (CAB)
- 8 technical reports
- 6 new handbooks.

The Center continued to give high priority responses for technical assistance (of these incoming requests, 263 were processed and 80 were cancelled). Of the assigned requests, 53 were subject to user charge and 210 were answered free of charge.

Utilizing the RDT&E On-Line System at the Defense Technical Information Center, the information base added 3,771 technical documents to the MCIC information system. Included in the annual total are 879 documents accessed to the Eighth Quarter.

Future plans are for the continuation of the primary and established products and services of the Center. The future operations include:

- (1) Keeping the data base and information system current and useful
- (2) Identifying and producing specific products and services needed by the users
- (3) Developing a greater visibility of the Center
- (4) Providing cost-effective service
- (5) Develop a close working relationship with DTIC.

PREFACE

This report was prepared by the Metals and Ceramics Information Center (MCIC) which is operated by Battelle's Columbus Laboratories, 505 King Avenue, Columbus, Ohio 43201, under Contract DLA900-78-C-1715. The MCIC program has been administered under the direction of the Defense Logistics Agency with technical supervision by the Army Materials and Mechanics Research Center, Watertown, Massachusetts, Mr. Sam Valencia, Contracting Officer's Technical Representative.

This Annual report covers the period of work May 1, 1979, through April 30, 1980. The Eighth Quarter statistics (February, 1980 through April, 1980) are also included. The report was released by the authors July 1980.

The MCIC and Battelle management express their appreciation to those many sponsor representatives whose advice, guidance and support have been essential to the continuing success of the MCIC program. Particular mention should be made of the significant contributions of

Mr. Joseph Blue, DLA
Mr. Samuel Valencia, AMMRC
Mr. J. Pendergast, DTIC

Ms. Frances Burke, DESC
Mr. Jerome Persh, OUSRDE

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**ANNUAL REPORT
(May, 1979 through April, 1980)**

and

**Eighth Quarterly Progress Report
(February through April, 1980)**

on the

**OPERATION OF THE METALS AND CERAMICS
INFORMATION CENTER**

to

**ARMY MATERIALS AND MECHANICS
RESEARCH CENTER**

INTRODUCTION

In 1971, the Metals and Ceramics Information Center (MCIC) was formed through the merger of the Defense Metals Information Center (DMIC) and the Defense Ceramic Information Center (DCIC). The former had been operated by Battelle since the mid-1950s, and the latter since 1967. Thus, MCIC is continuing more than 2 decades of service to the defense materials community.

As one of the family of technical information analysis centers sponsored by the Department of Defense, MCIC's purpose is to provide an authoritative source of current engineering and scientific information and data on metal and ceramic materials and composites containing those materials which may be applicable to defense systems. Although intended primarily for service to agencies of DoD and their contractors, MCIC's resources are available to the technical community at large, thus contributing to the transfer and adaptation of defense-developed technology for commercial and consumer use.

This report summarizes MCIC activities for the period May 1, 1979, through April 30, 1980, the second 12 months, under Contract DLA900-78-C-1715. It provides a summary of the scope, objectives and organization of MCIC, its information processing and services, and a discussion of future plans for the maintenance of the Center's resource of technical knowledge in metals and ceramics. Statistical summaries of expenditures for the various activities conducted in the Eighth Quarter and the two-year contract period are given in Appendix A (DSAH Form 1261).

Up to 3 additional years of Battelle's operation of MCIC are covered under our current contract.

Scope and Purposes of MCIC

MCIC is recognized as a formal full-service Department of Defense Information Analysis Center (IAC). As such, under the contract reported on herein, its objectives have been to provide scientific and technical information analysis services to the Department of Defense components, contractors and grantees. U.S. Government agencies and their contractors, and to the private sector. The scope includes metals, ceramics in various forms (i.e., bulk, coating or composite) which are utilized in defense systems and hardware with emphasis on critical structural applications and/or stringent environments.

The Center collects and provides its users with information on the design characteristics, applications, processing, fabrication, quality control, environmental effects, test methods, sources, suppliers, and specifications for materials within its scope.

To accomplish these objectives, the MCIC program consists of five principal functions:

- (1) Maintenance of a comprehensive, up-to-date, authoritative technical information base
- (2) Responses to requests for technical advice and assistance from Government agencies, contractors, suppliers, and the public sector
- (3) Issuance of a twice-a-month Current Awareness Bulletin covering metals and ceramic technology on a variety of subjects
- (4) Publication of technical reports, handbooks, databooks, critical reviews and technology assessments appraising the state of the art of metals, ceramics, and processes
- (5) Conduct a variety of special studies for DoD agencies and other departments of the Federal government.

Organization of the MCIC Program

The Metals and Ceramics Information Center is assigned to the Materials Information Program Office of Battelle's Columbus Laboratories. The Manager of that office also serves as Director of MCIC. Members of the permanent MCIC staff are drawn from Battelle's Materials Department and Computer Information Systems and Education Department. That full-time staff averages 15 engineers, information specialists and secretarial assistants, who are supported by nearly 100 engineers and scientists from throughout the Columbus Laboratories, contributing on a part-time basis as needed. The fundamental strength of the MCIC program lies in this team of qualified authorities, whose experience and daily participation in advanced materials research provides the Center's users with expert technical advice and authoritative state-of-the-art publications (see Figure 1).

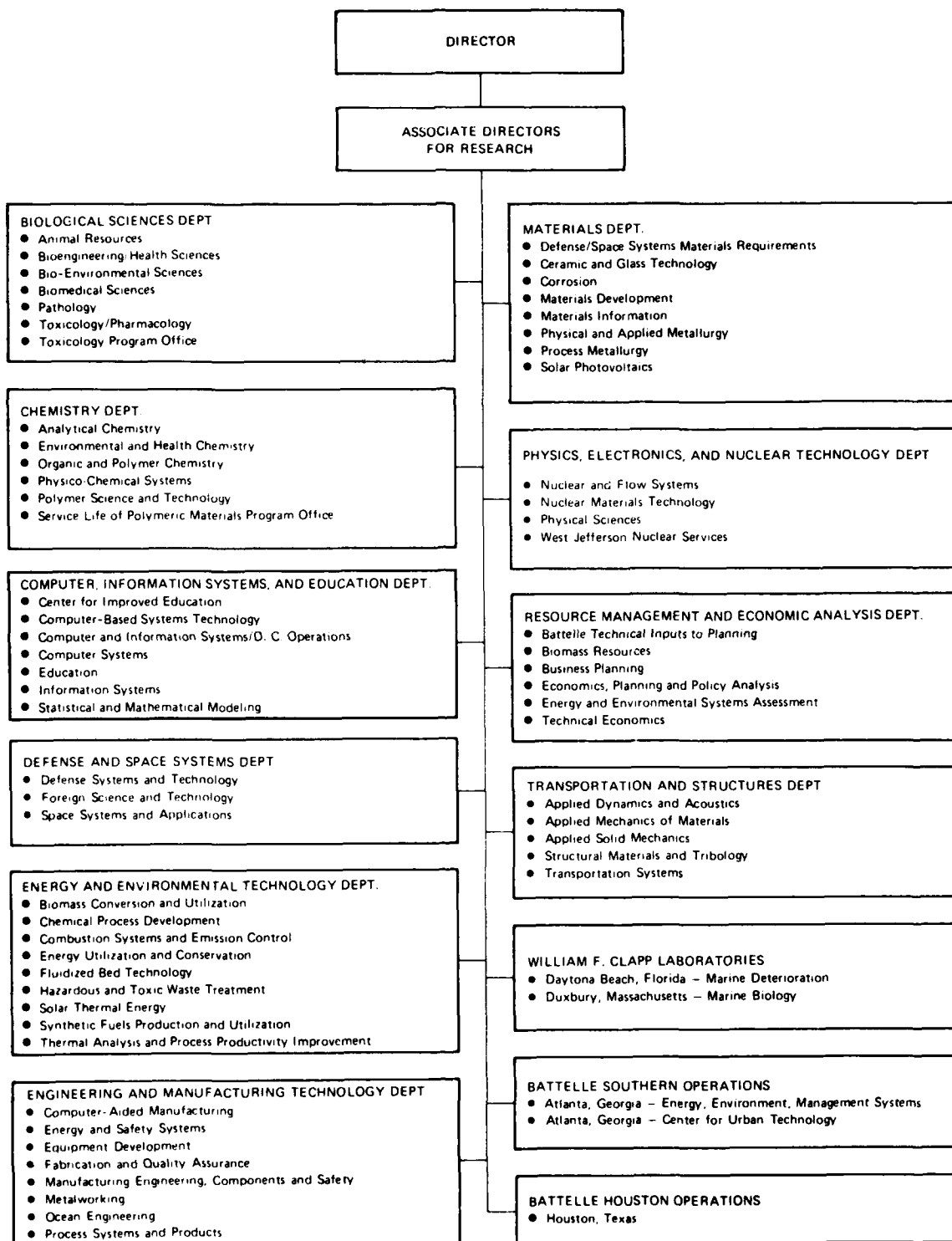


FIGURE 1. TECHNICAL RESOURCES OF BATTELLE AVAILABLE TO MCIC

Key MCIC staff assigned to manage the basic functions of the Center are:

Program Manager and Coordinator of Special Studies	Harold Mindlin
Associate Manager	James F. Lynch
Technical Inquiries and Current Awareness Bulletin	Roy W. Endebrock
Coordination of Marketing, Promotion, and Publication	Harold J. Hucek
Information Operations	Helen Pestel

INFORMATION OPERATIONS

An information base is maintained by MCIC to provide technical documentation needed by staff scientists and engineers who compile the various products of the Center and to provide a rapid, inexpensive retrieval mechanism to support the Center's technical inquiry service and special studies. The information base contains about 110,000 documents collected and reviewed since 1955 under MCIC and its two predecessors, DMIC (Defense Metals Information Center) and DCIC (Defense Ceramic Information Center).

The MCIC information base is maintained in two separate retrieval systems. The items collected prior to 1971 are maintained in a manual retrieval system utilizing extracts of documents which are filed in multiple locations by key words (index terms). The MCIC computerized file began in 1971 on the Battelle BASIS System and was moved to the Defense Technical Information Center RDT&E On-Line System in March 1975. The computerized file as of April 22, 1980 (Tab cycle 80-10), contains 35,605 references of which 23,551 are unique to the MCIC program, and 12,054 are DTIC holdings that were modified by enriched indexing.

Acquisition of Information

During the second year of the current MCIC contract, 4215 documents were acquired and reviewed for input into the MCIC data base. Of these, 444 documents were rejected because they were not considered relevant to the MCIC scope or because they duplicated information presently in the information base. During the Eighth Quarter, 987 items were acquired; 879 items were accessioned.

Table 1 indicates the percentages of the documents for the Eighth Quarter and the yearly total which were journal articles, government reports, conference papers and miscellaneous sources such as books, trade literature and internal papers. A breakdown of items accessioned

TABLE 1. MCIC ACQUISITIONS - MAY 1979-APRIL 1980

Document Type	May-Jun 79	Jul-Oct 79	Nov 79-Jan 80	Feb-Apr 80	Percent (a)	Total	Percent (b)
Journal Articles	563	454	383	512	58.2	1912	50.7
Technical Reports	261	411	558	303	34.5	1533	40.6
Air Force	91	113	162	104	11.8	470	12.5
Army	28	56	80	26	3.0	190	5.0
Navy	75	108	135	68	7.8	386	10.2
NASA	25	42	34	24	2.7	125	3.3
DOE/ERDA	17	18	21	23	2.6	79	2.1
Other	25	74	126	58	6.6	283	7.5
Technical Papers	44	149	38	62	7.1	293	7.8
Miscellaneous	6	15	10	2	0.2	33	0.9
Total	874	1029	989	879	100.0	3771	100.0

(a) Eighth quarter.

(b) Annual.

during the fifth through the seventh quarters of the present contract are also reported in Table 1.

Identification and acquisition of pertinent technical literature is aggressively pursued by the MCIC staff. The primary source of reports generated by DoD and other Government agencies is by direct distribution from the contractors or agencies producing the reports. Receiving reports on direct distribution avoids time delays in receipt of this information from secondary sources and allows the Center to have access to interim progress reports not distributed to secondary sources.

Pertinent reports not received on direct distribution are identified and ordered from Government abstracting services including DTIC's Technical Abstracts Bulletin (TAB), NTIS's Government Report Abstracts (GRA), NASA's Scientific and Technical Aerospace Reports (STAR), and DoE's Energy Research Abstracts (ERA).

Journal articles and technical papers are selected from a screening of all materials entering the Battelle Library on a daily basis. This source is supplemented by subscribing to key journals and ordering of individual technical papers by MCIC.

Two to 3 percent of the Center's acquisitions are from sources such as books, trade literature, and trip reports and memoranda on MCIC staff activities which contain technical data.

RDT&E Input

The MCIC bibliographic data base is maintained on the Defense RDT&E On-Line System at the Defense Technical Information Center. A total of 2789 of the 3771 documents accessioned this contract year were processed into MCIC's dedicated data base at DTIC. Of the remaining 982 documents, 971 were already in the DTIC collection. The DTIC records for these reports were supplemented with the MCIC accession numbers and enriched indexing. The remaining 11 reports were received by MCIC on direct distribution from Government Agencies and Contractors. They are being held for a sufficient time to determine if a DTIC record has been prepared for each item. Any report not present in the DTIC collection after a waiting period of about 2 months after receipt of the report by MCIC is assigned a number in the series of ADD numbers set aside for MCIC and added to the data base. Eighth Quarter statistics for RDT&E System input are: 771 items added to the MCIC series, 97 DTIC records augmented with MCIC number and enriched indexing, and 11 items being held for the waiting period.

On-Line Usage of the MCIC Data Base

On January 16, 1980, the MCIC data base became available to all on-line users of the Defense RDT&E System. Surprisingly few problems regarding the use of our data base have been brought to the attention of the MCIC staff during this period. We have received less than ten calls for assistance during the period even though 3240 records have been displayed on-line by users other than MCIC. Most calls involved availability information for reports and articles retrieved during searches. Table 2 summarizes the use of the data base by type of

TABLE 2. USE OF THE MCIC DATA BASE/DEFENSE RDT&E ON-LINE SYSTEM (JAN. 16 TO APR. 30, 1980)

Class of Users	Jan. 16-Jan. 31		Feb. 1-28		Mar. 1-31		Apr. 1-30		Total
	No. of Sites	Records Displayed	No. of Sites	Records Displayed	No. of Sites	Records Displayed	No. of Sites	Records Displayed	
Air Force	6	28	10	99	6	32	9	87	246
Army	12	69	10	107	16	186	18	93	455
Navy	9	54	9	210	9	125	12	150	539
Other Government	7	35	8	50	4	31	6	153	269
Industrial	5	62	7	66	9	226	8	62	416
DTIC	3	85	4	250	4	166	4	332	833
Other IACS	3	79	2	86	3	230	2	87	482
Total Other	45	412	50	868	51	996	59	964	3240
MCIC	1	453	1	994	1	1118	1	777	3342
Total	46	865	51	1862	52	2114	60	1741	6582

on-line site for all records displayed on-line. In future quarterly and annual reports both on-line and batch print statistics for use of the MCIC collection will be available due to the modification in the software in the RDT&E System.

TECHNICAL REPORTS AND HANDBOOKS

Information transfer on advances in materials technology within MCIC's scope and related to applications in defense systems and hardware is an important activity of this program. In response to needs of the Government, particularly DoD, as well as industrial and academic communities, a variety of publications is prepared by the Center. The archival documents include handbooks/databooks and technical reports which are represented in state-of-the-art reports, proceedings of conferences, critical reviews or technology assessments, as well as comprehensive listings of available literature as related to identifiable areas of interest.

A status summary of the Center's publications activity during the past year (May, 1979—April, 1980) is given in Table 3. In this annual period one handbook and two technical reports were published and three databook compilations and five technical reports were in process. Of these, one databook volume and three technical reports were initiated during the report year. In addition to the above, two handbooks and one report were reprinted. Also, one databook and one report are in the proposal or negotiation stage and should be started later in 1980.

A listing of Battelle personnel who contributed to these publications is given in Appendix D.

User Feedback

An effort to determine user satisfaction with MCIC's publications has been on-going since September, 1977 in accordance with contract requirements. A copy of the current "Product Evaluation Form" is shown in Figure 2.

The MCIC user evaluation sheet, which is a modified and approved version of the DLA suggested sheet, is included in technical reports and handbooks purchased from MCIC. The sheets include a business return address to MCIC. All original forms received by MCIC are copied and forwarded to DLA. Although this is a reversal of procedure suggested by DLA, it provides MCIC with a more rapid insight of user responses.

During this annual period 73 evaluations forms for 21 handbooks and 52 reports were received. The returns represent about two percent of the number of documents sold by MCIC directly. All returns indicated satisfaction with MCIC publications.

Analysis of the forms showed that the use rate varied from once per year to five times per week with the average at about 40 times per year. The savings realized from use of the publications ranged from \$100 per year to over \$10,000 with the average savings calculated to be about \$2,260 per year. The use of the publications on projects varied from 2 to greater than 10 (most people checked the 2-5 projects box). Some users requested more detail which

TABLE 3. STATUS OF MCIC TECHNICAL PUBLICATIONS (APRIL 30, 1980)

Publications	Activity Status ⁽¹⁾	Estimated Cost to Complete, \$	Completion Date		Remarks
			Original	Revised	
<u>Handbooks/Databooks</u>					
<u>Published</u>					
Engineering Property Data on Selected Ceramics, Vol. II, Carbides	-	-	-	-	Published 1/25/80
Handbook of International Alloys Compositions and Designations, Superalloys, HB-09V2	-	-	-	-	Reprint published 4/9/80 (\$7,500)
Handbook of Forging Equipment and Practices HB-03	-	-	-	-	Reprint published 4/9/80 (\$5,500)
<u>In Process</u>					
Engineering Property Data on Selected Ceramics, Vol. III, Oxides	TP	\$20,000	12/79	10/80	(3)
Soviet Alloys Handbook HB-05 Revision	TR	\$ 6,000	6/80	-	-
International Alloy Compositions, Volume III, Aluminum	TR	\$25,000	9/80	-	-
<u>Proposed</u>					
Advanced Composites Design Guide	N	(\$15,000)	-	-	Negotiating publication with Air Force Flight Dynamics Laboratory, WPAFB
<u>Technical Reports</u>					
<u>Published</u>					
Proceedings of the 1978 Tri-Service Conference on Corrosion, MCIC-79-40	-	-	-	-	Published 5/79
An Annotated Bibliography on Silicon Nitride For Structural Applications MCIC-79-41	-	-	-	-	Published 7/79
Corrosion of Metals in Marine Environments, MCIC-78-37	-	-	-	-	Reprint Published 4/11/80 (\$2,000)

TABLE 3 (Continued)

Publications	Activity Status ⁽¹⁾	Estimated Cost to Complete, \$	Completion Date		Remarks
			Original	Revised	
Technical Reports (Continued)					
In Process					
Surface Characterization of Materials	TP	—	—	—	(2)
Near-net Shaping of Ceramics	TP	\$10,000	11/79	11/80	(3)
Corrosion Fatigue in Marine Environments	TP	\$44,000	11/80	—	—
Special Welding Technology	TP	\$23,000	9/80	—	—
Metal Matrix Composites	TP	\$30,000	12/80	—	—
Proposed					
Rapid Solidification of Metals	—	(\$14,000)	—	—	—

(1) Legend: TP-technical preparation, TR-technical review, E-editing, P-publication, N-negotiation to publish.

(2) Discontinued. Several major publications obviated need for this report.

(3) Delay caused by larger than expected amount of data to be analyzed for the databook/report or extensive technical editorial changes.

PRODUCT EVALUATION

Please assist us by evaluating publications of METALS AND CERAMICS INFORMATION CENTER.

1. Name of Publication Evaluated: _____

We would appreciate it if you would complete this questionnaire and return it to the Metals and Ceramics Information Center. The Defense Logistics Agency administratively manages this information analysis center for the Department of Defense (DoD) and has the responsibility to insure that the Center is responsive to scientific and technical information needs of the defense community. Your candid evaluation and any other information will be used to effectively guide this Center in meeting your information needs, as well as assess the value of the Center to DoD. A copy of your evaluation will be forwarded to DLA.

2. Is the information (Check one or more as applicable):

- | | |
|---|--|
| <input type="checkbox"/> Relevant | <input type="checkbox"/> Easy to use |
| <input type="checkbox"/> Timely | <input type="checkbox"/> Do you expect to use it often |
| <input type="checkbox"/> Technically excellent | <input type="checkbox"/> Overall should be very useful to my job |
| <input type="checkbox"/> Technically satisfactory | <input type="checkbox"/> Other _____ |

3. Benefits you gained by using this publication:

A. How often would you estimate that you consulted or will consult this publication? _____ times per,

- ☐ day ☐ week ☐ month ☐ year (check one)

(1) What amount of time do you estimate that it would take you to otherwise locate this information yourself _____

(2) What do you estimate this time would cost you? _____

B. Can you think of instances in which the information contained in this publication helped or could help to save/avoid costs on a project/task? (e.g., eliminated or shortened a test, substituted material or component)

- ☐ Yes ☐ No

(1) In how many projects/tasks do you estimate you will use this information:

- | | |
|------------------------------------|-------------------------------------|
| <input type="checkbox"/> 2 or less | <input type="checkbox"/> 5 to 10 |
| <input type="checkbox"/> 2 to 5 | <input type="checkbox"/> 10 or more |

(2) Estimated costs saved or avoided:

- | | |
|--|---|
| <input type="checkbox"/> Less than \$100 | <input type="checkbox"/> \$1000 to \$5000 |
| <input type="checkbox"/> \$100 to \$500 | <input type="checkbox"/> \$5000 to \$10,000 |
| <input type="checkbox"/> \$500 to \$1000 | <input type="checkbox"/> \$10,000 or more |

(If such savings relate to a system being developed or modified for the U.S. Government, please specify):

4. Intangible benefits (please describe): _____

5. What changes, if any, would you recommend in this publication?

- | | |
|---------------------------------------|--|
| <input type="checkbox"/> Shorter | <input type="checkbox"/> Illustrations |
| <input type="checkbox"/> More detail | <input type="checkbox"/> Printing |
| <input type="checkbox"/> Organization | <input type="checkbox"/> Other |

6. Name (optional) _____

Organization _____

Job Title _____

Field of Specification _____

Please use this self mailer to return this evaluation form.

FIGURE 2. PRODUCT EVALUATION FORM

appears to be a particular individual's need and not amenable in the overall compilation of the document.

In general, this limited evaluation of MCIC reports, handbooks, and databooks indicates that the average publication is useful to 4-5 projects about 40 times per year and saves the user about \$2,260 per year. Conservatively, the evaluation means that the 3783 MCIC publications sold during the past year were used 151,320 times and saved the Government \$8.5 million on 17,000 projects. Thus, the Department of Defense has realized a return on investment of 11 to 1 for MCIC on publications alone.

CURRENT AWARENESS BULLETIN

The Center prepares and publishes a periodical entitled "Current Awareness Bulletin" (CAB) to alert the user audience, on a timely basis, to significant technological developments which relate to MCIC's material scope. Published twice monthly, each issue features material selected and reviewed by Battelle staff members with established expertise in the various subject areas covered.

The CAB format generally includes the following subject headings:

METALS

- Light Metals
- Steels
- Stainless Steels
- Superalloys
- Refractory Metals
- Metals Fabrication
(Metalworking, Joining)
- Net Testing Procedures

CERAMICS

- Structural
- Refractory
- Special Glasses
- Electronic
- Carbon-Graphite

COMPOSITES

CORROSION/COMPATIBILITY

MCIC NEWS

- Meetings/Symposia
- Call for Papers
- Recent Reports & Books
- New R&D Contracts
- Bulletin Credits
- Disclaimers

The CAB is provided upon request without charge primarily to U.S.-based users of the Center. During the past year, a survey of the CAB readership was conducted in order to update the distribution list. The new list (effective April 1, 1980) has about 3400 individual subscribers.

Publication statistics of the MCIC Current Awareness Bulletin for this annual reporting period, including the Eighth Quarter, are given in Table 4. A total of 24 issues (Nos. 57-80) were published. These represent a total of 213 pages (which include News sections) and 438 digests of technical literature.

In addition to CAB, a quarterly periodical co-sponsored by the Metals and Ceramics Information Center and the Metal Properties Council (MPC) has been published and

TABLE 4. PUBLICATION STATISTICS OF THE CURRENT AWARENESS BULLETIN FOR THE PERIOD, MAY 1979-APRIL 1980

Quarter	Issue No.	Date	No. of Pages	Number of References Cited				Total
				Metals	Ceramics	Composites	Corrosion	
1	57	5-19-79	11	16	2	-	5	23
	58	5-25	8	17	2	-	5	24
	59	6-8	8	10	-	1	5	16
	60	6-22	8	10	1	1	5	17
	61	7-13	11	13	1	-	5	19
	62	7-27	11	10	2	-	4	16
	TOTAL		56	76	8	2	29	115
2	63	8-10	8	11	1	-	6	18
	64	8-24	8	10	1	-	4	15
	65	9-14	8	11	4	-	4	19
	66	9-28	8	10	2	-	3	15
	67	10-12	7	8	1	-	5	14
	68	10-26	7	10	-	1	5	16
	TOTAL		46	60	9	1	27	97
3	69	11-9	8	9	1	-	3	13
	70	11-23	8	12	2	-	4	18
	71	12-7	11	9	1	-	5	15
	72	12-21	11	18	1	-	4	23
	73	1-9-80	11	10	2	1	4	17
	74	1-25	8	10	-	1	5	16
	TOTAL		57	68	7	2	25	102
4	75	2-8	8	9	3	-	5	17
	76	2-22	8	10	-	3	4	17
	77	3-14	8	14	-	-	4	18
	78	3-28	8	17	2	-	4	23
	79	4-11	11	23	2	-	7	32
	80	4-25	11	10	1	-	6	17
	TOTAL		54	83	8	3	30	124
GRAND TOTAL			213	287	32	8	111	438
(PERCENT)				(65.5)	(7.3)	(1.8)	(25.4)	

distributed free of charge to MCIC users for many years. Entitled "MCIC/MPC Review of the Low-Temperature Properties of Metals", it is authored by Mr. J. E. Campbell, an MCIC consultant and former MCIC staff member. The title is descriptive of the scope of materials accessions covered in the quarterly. During this reporting period, four publications were issued and distributed; 33 references on the subject were reviewed.

The Battelle personnel who contributed to the CAB publications in the Eighth Quarter are listed in Appendix D. The contributors to previous issues are listed in previous quarterly reports of the contract period.

Mailing List Update

An assessment of the CAB mailing list was initiated in June 1979. In that period a self-mailer was sent to the external list of about 4780 addresses. The updating task consisted of:

1. Survey card mailed in CAB Issue No. 60, 6/22/79
2. Follow-up announcement in CAB Issue No. 62, 7/29/79
3. Second follow-up in CAB Issue No. 64, 9/24/79
4. Final letter indicating termination, after 10/5/79.

As of October 30, 1979 about 2200 responses were received. Significant changes in the mailing list count continued over the next six months. As of April 1, 1980 the list has stabilized at about 3250 qualified addresses to government, industrial, and academic recipients in the U.S. The survey reduced the prior mailing list by one-third.

The new list together with other lists of MCIC is now being maintained by a commercial mailing service organization in Columbus, Ohio.

INQUIRY SERVICES

Technical Inquiries

MCIC routinely provides rapid responses to urgent requests for technical aid. This service, developed over the many years that the Center has served the DoD community, distinguishes MCIC as an Information Analysis Center. Of considerable importance to this service is the availability to MCIC of the skilled scientists and specialists of the Battelle Columbus Laboratories staff. Consequently, MCIC can provide direct contact, if needed, between inquirer and a technical authority for the expeditious resolution of materials problems. MCIC provides answers through telephone discussions, on-line computer printouts, letter reports, on-site visits, and its own published reports and handbooks.

TABLE 5. TECHNICAL INQUIRY STATISTICS FOR THE PERIOD, MAY 1979 - APRIL 1980

Category	Number of Inquiries Per Quarter												Annual Total	
	Fifth		Sixth		Seventh		Eighth				Annual Total			
	SC(a)	NC(b)	Total	SC	NC	Total	SC	NC	Total	No. (Percent)				
Industrial	12	52	64	10	46	56	11	35	46	13	35	48	214	(81.4)
Government	3	11	14	1	3	4	2	8	10	1	7	8	36	(13.7)
Academic	-	-	-	-	2	2	-	4	4	-	2	2	8	(3.0)
Foreign	-	2	2	-	-	-	-	2	2	-	1	1	5	(1.9)
Totals, No.	15	65	80	11	51	62	13	49	62	14	45	59	263	
Quarterly, %	18.8	81.2		17.7	82.3		21.0	79.0		23.7	76.3			
On Annual Basis %	5.7	24.7	30.4	4.2	19.4	23.6	5.0	18.6	23.6	5.3	17.1	22.4		(100.0)
SC(a) Income, \$16,432	\$4205			\$6437			\$3835			\$1995				
NC(b) Credit, \$10,500		\$3250			\$2550			\$2450			\$2250			
Cancelled (c) Inquiries Credit, \$4,000		\$650(13)			\$1000(20)			\$1250(25)			\$1100(22)		(80)	
Quarter Subtotals, \$30,932			\$8105			\$9987			\$7535			\$5305		
Type of Response														
Technical (non-biblio)	6	57	63	3	47	50	3	46	49	6	36	42	204	(77.6)
Bibliographic	9	8	17	8	4	12	10	3	13	8	9	17	59	(22.4)
Quarter Totals	15	65	80	11	51	62	13	49	62	14	45	59	263	
SC Bibliographic Inq.													35	
NC Bibliographic Inq.													23	

(a) SC - Service Charge

(b) NC - No Charge

(c) Number in parentheses indicates number of inquiries.

Statistics for the technical inquiries processed during the 12-month period (May 1979—April 1980) are summarized in Table 5. Classification of these technical inquiries is provided in Table 6. Eighth Quarter statistics are included in both tables.

During this annual report period, MCIC received 343 requests for technical assistance of which 263 were processed and 80 were cancelled. The effective rate was essentially 76.7 percent. In the two preceding annual report periods (AMMRC-TR-79-43/July 1979 and AMMRC-TR-78-43/July 1978) the effective rates were 84.8 and 78.5 percent, respectively.

Of the completed inquiries, 53 were subject to a user charge and 210 were answered without charge. *Many of the technical inquiries are really multifaceted and complex, although counted statistically as single inquiries.* Ordinarily, each of the no-charge inquiries represented a minimal effort by an MCIC staff member or a Battelle engineer, requiring an hour or less of effort to provide a satisfactory answer. On the other hand, cancelled inquiries often required more MCIC effort in addition to the technical effort required to provide a cost estimate. Note that a cancelled inquiry is classed as one that has been priced (sometimes even processed during the cursory evaluation) but not completed because final authorization to proceed was never received by MCIC.

The charges for the 53 service charge (SC) inquiries ranged from \$20 to \$3907 for a single inquiry and represent a total income of \$16,432. The 210 no-charge (NC) inquiries, credited at \$50 per inquiry, represent a cost of \$10,500; the 80 cancelled inquiries, also credited at \$50 per inquiry, represent a cost of \$4000.

TABLE 6. CLASSIFICATION OF TECHNICAL INQUIRIES PROCESSED BY MCIC DURING THE PERIOD MAY 1979—APRIL 1980

Classification	Number of Inquiries per Quarter								Annual Total	
	Fifth		Sixth		Seventh		Eighth		Total	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Materials										
Metals	71	88.8	52	83.9	54	87.1	54	91.5	231	87.8
Ceramics	7	8.7	8	12.9	7	11.3	5	8.5	27	10.3
Composites	2	2.5	2	3.2	1	1.6	—	—	5	1.9
Totals	80	100.0	63	100.0	62	100.0	59	100.0	263	100.0
Technical Scope										
Properties	31	38.8	20	32.2	25	40.3	22	37.3	98	37.3
Processing	21	26.2	13	21.0	21	33.9	14	23.7	69	26.2
Applications	6	7.5	4	6.4	4	6.5	7	11.9	21	8.0
Corrosion	5	6.2	6	9.7	3	4.9	6	10.1	20	7.6
Markets	5	6.2	5	8.1	2	3.2	2	3.4	14	5.3
Fundamental Behavior	4	5.0	5	8.1	2	3.2	1	1.7	12	4.6
Specifications	4	5.0	3	4.8	2	3.2	1	1.7	10	3.8
Test Methods	1	1.3	4	6.5	2	3.2	3	5.1	10	3.8
Foreign Equivalents	3	3.8	2	3.2	1	1.6	3	5.1	9	3.4

Listings of the specific requestors for whom assistance was provided and the Battelle-Columbus personnel who were directly involved in technical inquiry services during the Eighth Quarter are given in the Appendices B and D, respectively, in this report. Inquiry listings and personnel involved in inquiry services for the other quarterly periods are given only in appendix sections of previous quarterly reports.

Nontechnical Inquiries

Significant effort also is expended in answering a variety of queries unrelated to MCIC's technical scope. A statistical summary of the number of inquiry responses to the sectors of the user audience is given in Table 7.

In the annual report period, approximately 1232 nontechnical inquiries were answered by MCIC management and supporting staff. Of these 779 inquiries, 188 were industrial, 146 Government, 68 academic, and 239 foreign. Typical inquiries represent questions related to:

- Products and services of the Center
- Quotations on MCIC products/services
- Orders for MCIC reports/handbooks
- Information on CAB and its availability
- Requests for TML, DMIC, and DCIC reports
- Identification and source of Government reports
- Requests for references cited in publications
- Source for acquisition of journal articles
- Source(s) of technical information not in MCIC scope.

TABLE 7. NONTECHNICAL INQUIRY RESPONSES

User Audience	Nontechnical Inquiries per Quarter				Total	
	5	6	7	8	No.	Percent
Government	43	50	29	24	146	11.9
Industrial	211	195	185	188	779	63.2
Academic	12	23	15	18	68	5.5
Foreign	56	61	53	69	239	19.4
Total					1232	

SPECIAL STUDIES/TASKS

This special service is directed primarily to DoD and other Government agencies and may be described as "super" inquiries. Each study/task can involve one or more phases which require a substantial amount of technical effort extending over a period of time. The studies/tasks are conducted or monitored by MCIC whose combination of information and data resources together with the professional skills of Battelle's research staff make it possible to save both time and costs in completing each effort. Through such assignments, the DoD is able to capitalize further on the substantial investment it has made in the creation of MCIC as a full-service information analysis center.

Table 8 presents a summary of the 12 special studies conducted during this contract period (May 1979—April 1980).

In addition, one special task was undertaken in support of the Thermophysical and Electronic Properties Information Analysis Center (TEPIAC) to provide mechanical properties data. This effort was in support of a TEPIAC publication series. Although a great deal of effort has gone into the search for the required data, it appears that much of the data was not available.

During the second year of this contract, additional special task funding of \$362,150 was received through basic contract modifications. Additional income of \$16,968 was received through registration fees for conferences involving MCIC management and \$13,297 was credited for ManTech Journal subscriptions (2-year income). Two new special tasks were undertaken in the annual period. Five tasks were continued into the third contract year.

MARKETING AND PROMOTION

In accordance with DoD policy, a service-charge program was initiated in 1972. Since that time 69 technical documents (not including CAB) have been generated and are being sold through MCIC's marketing program. At the present time marketing is being conducted by five outlets in addition to MCIC. These agencies, which have a formal marketing agreement with MCIC include:

NTIS (worldwide)

American Society for Metals (U.S. only)

Metal Powder Industries Federation (U.S. only)

Neutrino/MRI (Japan)

Allied Publishers Private, Ltd. (India).

In this current year (May 1979—April 1980), 3783 documents were sold for a gross income to MCIC of \$117,320. The documents included 1941 technical reports (\$43,654), 1364 handbooks/databooks (\$57,640), 478 special documents (\$16,026). Statistics are given in Appendix Tables C-1, C-2 and C-3, respectively.

TABLE 8. SUMMARY OF SPECIAL STUDIES

Title or Description	Contract Modification	Funding Level	Sponsoring Agency	Period of Performance
Carbon/Carbon Composites Materials				
Evaluate Data	P00002	\$ 35,000	Air Force/RPL	1 May 1978 - 31 Oct 1978
Establishment and Operation of Data Base	P00011	50,000	Air Force/AFML	5 Jan 1979 - (Continuing)
	P00012	80,000	Navy/NAVSEA	
	P00022	50,000*	Air Force/RPL	
		55,000*	Air Force/AFML	
Manufacturing Technology Plan	P00003/4	85,000	Navy/NAEC	1 May 1978 - 30 Sep 1979
	P00006	85,000	Navy/NASC	
Silicon Nitride Properties	P00001	6,000	AMMRC	22 June 1978 - 31 Dec 1978
Technical Assistance in Establishment of Army Battlefield Systems	P00001	74,976	AMMRC	22 June 1978 - 30 Apr 1980
Integration, Base Terminology Data Base	P00013	3,024		
	P00017	28,750*		
	P00021	50,000*		
Preparation of Journal for Army Manufacturing Technology Program	P00005	34,370	AMMRC	4 Aug 1978 - (Continuing)
	P00009	95,346		
	P00015	11,246		
	P00018	127,000*		
	P00021	22,500		
	-	13,297***		
Publication of Proceedings of Tri-Service Corrosion Conference	P00008	7,855	AMMRC	28 Sep 1978 - 30 June 1979
		7,000	ARRADCOM	
Technical Advisory Services for AMMRC and OUSDRE	P00005	8,500	AMMRC	4 Aug 1978 - 30 Apr 1979
Ship Structural Research and Development Requirements	P00007	20,000	Navy/NSRDC	11 Sep 1978 - 30 June 1979
Fourth Conference on Fibrous Composite in Structural Design	P00010	6,975	AMMRC	10 Nov 1978 - 31 Dec 1980
		18,602**		
Third Army Materials Technology Conference on Ceramics for High-Performance Applications	P00013	24,985	AMMRC	2 Mar 1979 - 31 Dec 1980
		16,646**		
Crack Arrest Development Plan	P00019	20,000*	Navy/NSRDC	30 Aug 1979 - (Continuing)
CAD/CAM Technology Transfer (Phase I)	P00021	8,900*	AMMRC	30 Sep 1979 - 30 Apr 1980

* Second contract year funding.

** Fees charged to registrants at Conferences. Required to cover conference expenses, publication of proceedings for authors and attendees.

*** ManTech Journal income (2 yrs).

TABLE 9. PROMOTION EFFORTS ON MCIC PUBLICATIONS (EIGHTH QUARTER)

Report No.	Short Title	Type of Promotion	Publication
MCIC-HB-07V1	Ceramics Handbook, Nitrides	CAB Insert	CAB No. 75, February 6, 1980
MCIC-HB-09V1 & V2	International Alloys, Titanium & Superalloys	CAB Insert	CAB No. 77, March 5, 1980
MCIC-77-34	Hot Isostatic Processing	CAB Insert	CAB No. 78, March 28, 1980
MCIC-79-40	Tri-Service Corrosion Conference, Proceedings	Book Review	Metals Abstracts, American Society for Metals
All Reports & the Center	Display at Conference on Recent and Emerging Materials Technology	Manned Display	March 18-19, 1980, Battelle-Columbus
MCIC Reports & the Center	Booth at DOE Sponsored Meeting on Energy & Materials	Manned Booth & Display	Battelle Booth on March 24-27, 1980 in Washington, D.C.
AMTC #1, #2, #3, #4, & #5	Proceedings of the Five Army Materials Technology Conference	CAB Insert	CAB No. 79, April 11, 1980
MCIC-79-39	High-Strength, Low-Alloy Steels	CAB Insert	CAB No. 80, April 25, 1980
MCIC-78-37	Corrosion of Metals in Marine Environments	Book Review	Trans. Tech. Vol. 10, 1979
MCIC-79-39	High-Strength, Low Alloy Steels	Book Review	Trans. Tech. Vol. 12, 1979

During the Eighth Quarterly period, 811 documents were sold for a gross income to MCIC of \$26,216; included were 408 technical reports (\$9,568), 352 handbooks/databooks (\$14,199), and 51 special documents (\$2,450). Details on these statistics are given in Appendix Tables C-4, C-5 and C-6, respectively.

The rental or sale of the MCIC films entitled, "Scanning Fractures with the Electron Microscope", and "Ceramics and Metals in Medical Prosthetics" provided a gross income for the past year of only \$161 of which \$86 was received in the Eighth Quarterly period. No new MCIC films are planned for the immediate future.

Experience has shown that the sale of MCIC's products and services requires an aggressive promotion effort. Consequently, MCIC has maintained a modest program within the limitations of resources available. The promotional efforts conducted during the Eighth Quarter are summarized in Table 9. Promotional activities of the previous report periods are given in the prior quarterly reports in this annual period.

The promotional program conducted during the past year has resulted in an actual income to MCIC of \$125,117 which is a 50.6 percent increase over 1979 sales income (\$83,087) and the highest sales income per year in MCIC history (since 1972). Therefore, this successful promotional program will continue with special mailings, inserts in technical journals as book reviews, and special announcements in pertinent trade literature. Other marketing agencies also will be sought.

Expressed interest by foreign clients in the availability of the Current Awareness Bulletin (CAB) was pursued in this report period. Approval to proceed with the development of marketing sources was given by DLA. Neutrino, Inc. of Japan was interested in the periodical and proceeded to develop subscribers. However, in September 1979 DLA informed this Center that the planned foreign distribution of CAB should be dropped. Consequently, a letter was sent to Neutrino in October 1979 indicating the new policy, and no further promotion of CAB subscription overseas has been pursued.

Meetings Attended

In support of MCIC's program management, operation, and technical activities, personnel of both the Center and Battelle's Columbus Laboratories attended 42 meetings during this annual report period. The following meetings were attended in the Eighth Quarter. Meetings attended during the 5th through 7th Quarters were given in the respective quarterly reports.

Personnel	Meeting	Location	Date
H. Mindlin	Discussion of MCIC activities with J. Persh and J. Blue	DoD-Pentagon	February 1980
	Special Tasks discussions	AMMRC	March 1980
	Mat'ls/Structure Conference Discussion (J. Persh)	DoD-Pentagon	April 1980
	NBS and SERI to discuss MCIC activities	Bolder and Golden, CO	April 1980
	MIL-HDBK-5 to discuss MCIC activities	Seattle, WA	April 1980
D. Maykuth and C. Claydon	JANNAF Propulsion Meeting	Monterey, CA	March 1980
D. Maykuth, C. Claydon, L. Messing	Mantech Exit Cone Workshop and Representatives at meeting from TEPIAC	Bergamo Conf. Ctr. Dayton, OH	March 1980
D. Maykuth, L. Messing	Industry Briefing by Fiber Materials Inc.	Bedford, Maine	April 1980
D. Maykuth, L. Messing	Industry briefing by AVCO	Lowell, Mass.	April 1980
H. Pestel	DROLS Regional Users Meeting (DTIC)	Orlando, FL	March 1980
	Metals Information Committee	American Society for Metals Cleveland, OH	April 1980
D. Spalsbury	MICOM, ManTech Journal Gathering	Huntsville, Ala.	February 1980
	AMMRC, ManTech Journal Information Gathering	Boston, Mass.	March 1980

Visitors

The following government, industry and foreign representatives visited MCIC during the annual period covered by this report. Several of the visits were related to special tasks; others were related to specific MCIC operations or for general overviews of this program.

Name/Area of Interest	Company/Organization
Y. Yamamoto/Publications	Neutrino/Japan
C. Holister/MCIC Operations	General Electric Co.
J. Guilleminet, A. Yanez/ MCIC Operations	CEDOCAR, France
J. Adachi, J. Chang, G. Maddux/ Effects of Rapid Heating	AMMRC, NRL, AFFDL
S. Starrett/Carbon-Carbon Composites Data Base	SORI
J. Meyer, Margaret M. Orth/ ManTech Journal	TechTran Corp.
G. Milburn/MCIC Operations	OUSDR&E
F. Burke, Maj. H. Campbell/ MCIC Operations	DESC
J. Persh/Special Task Discussion	OUSDR&E
Dr. T. Kishi/MCIC Operations	Toshiba/Japan
24 Persons/Carbon-Carbon Composites	Government/Industry Representatives (U.S.)
G. Gorline/ManTech Journal	ARADCOM
W. H. Cubberly, H. D. Chafe/ Marketing of Publications	American Society for Metals
6 Persons/MCIC Operations	Republic of China Metallurgy Group
J. Brown/Corrosion	AMMRC
M. Carr/Silicon Nitride	AMMRC
C. Kobrin/MCIC Publications	Cordura Publishing
Satore Tsukagawa/Electrical Insulations for Automotive Applications	Isuzu Motors Ltd./Japan
Dr. S. Nishijima/MCIC Operations & Publications	National Research Institute for Metals, Tokyo, Japan

INCOME AND COST RECOVERY

Charges for MCIC's products and services have been in effect since January 1972. The objective of the service-charge program is to recover part, or all, of the costs associated with the output of the Center. The income is intended to offset many costs and to provide for expansion of services to the technical community.

The income achieved by MCIC in the Eighth Quarter as well as the total income for the annual period May 1979 through April 1980 was \$33,658 and \$530,160, respectively. A breakout for the income is shown in Table 10.

The total income (530,160) for the annual period represents 70.2 percent of the basic funding (\$755,000). In general, the overall income of the period of the program exceeds the contractual goal for the service-charge requirement.

Specifically, the amount of direct income (\$517,313) and the amount of indirect income (\$12,847) represents a cost recovery of 97.6 percent and 2.4 percent, respectively, based on total income. Activities related to MCIC publications, i.e., reports, handbooks, films, and inquiry services, were responsible for 25.0 percent of the income, whereas, the special studies/tasks and associated product sales income accounted for 75.0 percent of the total income.

Mailings

Payment of postage costs for MCIC mailings was effective on 1 May 1978 per instructions from the Defense Logistics Agency. During the Eighth Quarter, 26,565 pieces of mail were processed through the mail facility of Battelle's Columbus Laboratories at a cost of \$2,446.04; the mailings included 521 at 1st Class rate, 24,258 at Bulk rate, and 1,786 at Air Parcel Post or 4th Class Book rate. The mailing Bulk rate was for the Current Awareness Bulletin.

A detailed accounting of the postage activity and costs for the annual period (May 1979—April 1980) is given in Table 11. A total of 143,720 pieces of mail was processed at a mailing cost of \$17,480.68.

TABLE 10. MCIC INCOME SUMMARY

Products/Services	Income, \$*	
	8th Quarter	Annual Total (a)
<u>Direct</u> ^(b)		
Publications:		
Reports	9,568	42,884
Handbooks	14,199	56,639
Films	86	161
Inquiry Services	1,365(c)	9,135(h)
Special Studies/Tasks	—	392,415
Miscellaneous	<u>2,450(d)</u>	<u>16,079</u>
Subtotal	27,668	517,313
<u>Indirect</u> ^(e)		
Technical Assistance Contracts	410(f)	2,310(h)
Other Contracted Activities(i)	5,400	5,400
In-House Inquiry Services	<u>180(g)</u>	<u>5,137(h)</u>
Subtotal	<u>5,990</u>	<u>12,847</u>
TOTAL	33,658	530,160

(a) May 1979 — April 1980.

(b) Obtained from (1) sale of publications and services; income returned directly to the contract and (2) studies/tasks as supplements to the MCIC contract.

(c) Eight inquiries, Nos. 1700, 1709, 1710, 1724, 1727, 1737, 1745 and 1763 billed by MCIC or NTIS.

(d) Supplemental income from special products listed in Appendix C.

(e) Constitutes (1) separately contracted studies for either government or industrial sponsors and (2) costs of services provided to in-house programs; see Appendix B for identification.

(f) Service contract with Aerospace Corporation, Inquiry No. 1721.

(g) In-house inquiries, Nos. 1713, 1718, 1722, 1741 and 1743.

(h) Technical inquiry income reported in Appendix A.

(i) Contract with Metals Properties Council for quarterly reviews on "Low-Temperature Properties of Metals", 1980.

* Total billing for periods indicated. Actual incomes received for publications and inquiry service in the 8th Quarter and Second Annual periods were \$30,886 and \$125,117, respectively.

TABLE 11. ANNUAL POSTAGE STATISTICS (MAY 1979 - APRIL 1980)

MCIC Operation	Number of Pieces			Cost, \$
	1st Class	Book Rate(a)	Bulk Mail	
Info Input	503	19	—	108.69
Technical Inquiries	75	1	—	182.60
CAB	21	—	112,516	3,132.58
ManTech Journal	411	2,312	—	1,677.25(b)
Marketing & Promotion	854	1,519	20,620	5,632.73
Administration	822	54	—	398.09
C/C Composites	473	1	—	716.49
Business Reply & Return	<u>3,519</u>	<u>—</u>	<u>—</u>	<u>(c)</u>
Totals	6,678	3,906	133,136	17,480.68

(a) Fourth class.

(b) Corrections of \$3.04 in the 5th Quarter and \$515.52 in 6th Quarter Cost are incorporated in the ManTech Journal Cost.

(c) Cost included in CAB.

FUTURE PLANNING

MCIC has completed 9 years of successful operations (1971-1980) under the administrative guidance of the Defense Logistics Agency and the technical guidance of AMMRC. In general, the basic operational procedures that have been developed, refined, and tested over the many years of its effective service to the Department of Defense and its technical community will be continued. Some areas which will be of primary concern in the future operations of MCIC include:

- Keeping the data base and information system current and useful
- Identifying and producing specific products and services for user needs
- Developing a greater visibility of the Center
- Providing effective service despite increasing inflationary costs
- Develop a close working relationship with DTIC per 1979 reorganization of the IAC within DLA.

Information Operations and Control

Limitation or reduction of document storage space and continued upgrading of retrieval vocabulary are two areas which require attention in regard to control and implementation of MCIC's storage and retrieval system.

The technical information base which contains about 110,000 documents (1955 to present) is creating a storage problem within the MCIC complex at Battelle. A reduction in the storage space is imperative with respect to a cost-effective information input operation. Consequently, MCIC will plan for a selective purge of older documents and examine the possibility of conversion of the hard-copy documents to microfiche. These tasks will be new activity assignments for the information operations staff to be undertaken as time and resources become available.

The second planned task concerns an upgrading of the MCIC information/data base which is now available to all users of the RDT&E On-Line System. Since MCIC transferred its information/data base from Battelle to the DTIC computer in 1975, some effort has been made to clean up the index vocabulary to improve effective retrieval of pertinent information from the MCIC file. About 8000 records still need a change in redundant and misspelled terms to preferred terms. Limitations of this task are available funds and software modifications by DTIC.

Products and Services

No major changes in the traditional products and services are planned for the immediate future since such products and services continue to be of interest and usefulness to the MCIC user audience. The initiation of technical conferences as a new approach to information transfer will be pursued when appropriate subject areas are identified and funds are available. Likewise, MCIC's future publications will be based on technical subject areas that will have been specifically identified as being of significant importance to the DoD and its supporting technical community.

Promotion and Marketing

Continuous promotion of MCIC as a specialized source of evaluated technical information and marketing of the Center's various products and services are recognized as being vital to both mission and future.

The visibility of MCIC in Government and academic communities is appreciably less than in the industrial sector as indicated by requests for products and services. Consequently, increased promotion of these two sectors will be pursued more aggressively in the future through direct contact at conferences and technical meetings, but limited to available funds.

Marketing of products has been significantly improved in the past 2 years through expanded marketing activity in both domestic and foreign areas. To further capitalize on the approach,

MCIC will make greater use of (1) bulk mailings (U.S.) of promotional literature to select audiences and (2) other domestic and foreign booksellers to market MCIC products.

Operations Management

With the basic funding at the same level for the past 5 contract years, the maintenance of the present level of products and services presents a continuous problem for MCIC because of inflation. Although adjustments in program activities and operational staff are possible solutions to the problem, a more positive approach must be taken. Consequently, continuing efforts are being made to procure additional funds from the expansion in sales of products and services with special emphasis on special studies/tasks. In addition, a review of personnel assignments and work loads will be made to determine if more cost-effective results can be obtained through the use of the computer and a subsequent reduction of staff. If positive approaches do not appear sufficient to maintain an overall cost-effective program, then a reduction in the activity on metal-matrix composites and/or ceramic materials will be made with DLA approval.

Worldwide marketing of 69 different products by MCIC presents two situations which can have future impact on the distribution of funds in MCIC operations. The problem areas concern (1) cost to warehouse the volume of reports, handbooks, books and (2) cost to reprint older documents which are still in demand but the available stock is dwindling. Several options will be considered in response to the problem. These are:

- (1) Use of a commercial publisher to print, store, market and distribute all MCIC publications
- (2) Use of a bookseller to warehouse and distribute MCIC documents with marketing and sales conducted by MCIC
- (3) Use total services of NTIS with publication only by MCIC
- (4) Retain control of publication, warehousing, marketing sales and distribution as currently being done by MCIC.

An evaluation of these options with respect to cost-effectiveness, i.e., cost versus net income, will be conducted by MCIC management.

APPENDIX A

CONTRACT STATUS REPORTS

APPENDIX A

CONTRACT STATUS REPORTS

Table A-1 Eighth Quarter (February-April 1980)

Table A-2 Second Annual (May 1979-April 1980)

Table A-3 Cumulative for Program (May 1978-April 1980)

FOOTNOTES FOR TABLE A-1

- (a) According to Battelle definitions of personnel.*
- (b) Cost of staff time directly related to MCIC operations and special studies/tasks.*
- (c) Costs other than direct staff time.*
- (d) Reference Table 10.*
- (e) Of these, 14 were on a charge basis; see "Inquiry Services" section and Appendix B.*
- (f) Costs included with technical inquiries.*
- (g) 3 in preparation; see Table 3.*
- (h) Reprinting of HB-03 and HB-09V2.*
- (i) Reprinting of MCIC-78-37; 5 in process.*
- (j) None in process.*
- (k) Combined activities of (1) Current Awareness Bulletin publication, (2) promotion of MCIC, and (3) marketing and distribution of publication.*
- (l) See section on "Special Studies/Tasks".*
- (m) Contractual fee.*
- (n) Both direct and indirect income.*
- (o) Includes income for Reports, Films and Miscellaneous categories; see "Income", Table 10.*
- (p) ManTech Journal subscription fees for period of May 1978 - December 1979.*

TABLE A-1. EIGHTH QUARTER

INFORMATION ANALYSIS CENTER CONTRACT STATUS REPORT		NAME OF INFORMATION ANALYSIS CENTER Metals & Ceramics Information Center		QUARTER ENDING April 30, 1980		CUMULATIVE THRU — —	
AREA TITLE	OUTPUT UNITS PRODUCED	MANHOURS EXPENDED			COSTS INCURRED		
		PRO. (a) FESSIONAL	NON-PRO (a) FESSIONAL	TOTAL	DIRECT (b)	INDIRECT (c)	TOTAL
1. ACQUISITION AND INPUT OF SOURCE INFORMATION		766	1,298	2,064	20,812	31,714	52,526
a. DOCUMENTS ACQUIRED	873						
b. DOCUMENTS REVIEWED	873						
c. DOCUMENTS CATALOGED	765						
2. TECHNICAL INQUIRY RESPONSES PROVIDED(e)	42	296	100	396	6,338	8,499	14,837
3. BIBLIOGRAPHIC INQUIRY RESPONSES PROVIDED(e)	17	—	—	—	—	—	(f)
4. HANDBOOKS/ DATA BOOKS COMPLETED(g)		167	—	167	3,003	7,232	10,235
a. NEW CHAPTERS/PAGES COMPLETED	—						
b. REVISED CHAPTERS/PAGES COMPLETED(h)	2/901						
c. DATA SETS COMPILED	—						
5. STATE-OF-THE-ART STUDIES COMPLETED (i)	1	275	352	627	7,016	11,395	18,411
6. CRITICAL REVIEWS AND/OR TECHNOLOGY ASSESSMENTS COMPLETED(j)	—	—	—	—	—	—	—
7. CURRENT AWARENESS AND PROMOTION EFFORTS/ MARKETING(k)		619	893	1,512	17,417	37,200	54,617
a. NUMBER NEWSLETTERS AND/OR ANNOUNCEMENTS PUBLISHED	7/13						
b. NUMBER MEETINGS, CONFERENCES, ETC SUPPORTED	13						
8. OTHER Special Studies and Tasks (l)	2	1,791	479	2,270	29,748	100,588	130,336
9. MANAGEMENT AND SUPPORT		526	549	1,075	16,772	25,751	42,523
10. UNASSIGNABLE INDIRECT COSTS(m)		—	—	—	—	13,944	13,944
11. TOTAL		4,440	3,670	8,110	101,106	236,323	337,429
							41,948

TABLE A-2. SECOND ANNUAL

INFORMATION ANALYSIS CENTER CONTRACT STATUS REPORT	AREA TITLE	NAME OF INFORMATION ANALYSIS CENTER Metals & Ceramics Information Center		QUARTER ENDING -- --		CUMULATIVE THRU May 79 - April 80	
1. ACQUISITION AND INPUT OF SOURCE INFORMATION	a. DOCUMENTS ACQUIRED	4101	219	44	12/135	-	-
2. TECHNICAL INQUIRY RESPONSES PROVIDED	b. DOCUMENTS REVIEWED	4101	3657	219	44	12/135	-
3. BIBLIOGRAPHIC INQUIRY RESPONSES PROVIDED	c. DOCUMENTS CATALOGED	4101	3657	219	44	12/135	-
4. HANDBOOKS/DATA BOOKS COMPLETED	a. NEW CHAPTERS/PAGES COMPLETED	12/135	-	-	-	-	-
5. STATE-OF-THE-ART STUDIES COMPLETED	b. REVISED CHAPTERS/PAGES COMPLETED	-	-	-	-	-	-
6. CRITICAL REVIEWS AND/OR TECHNOLOGY ASSESSMENTS COMPLETED	c. DATA SETS COMPILED	-	-	-	-	-	-
7. CURRENT AWARENESS AND PROMOTION EFFORTS/ MARKETING	a. NUMBER NEWSLETTERS AND/OR ANNOUNCEMENTS PUBLISHED	29/42	40	5	-	-	-
8. OTHER Special Studies/Tasks	b. NUMBER MEETINGS CONFERENCES, ETC SUPPORTED	-	-	-	-	-	-
9. MANAGEMENT AND SUPPORT	-	-	-	-	-	-	-
10. UNASSIGNABLE INDIRECT COSTS	-	-	-	-	-	-	-
11. TOTAL							

*Total billed income.

**Actual income received for period was \$125,117 for products and services.

TABLE A-3. 2-YEAR TOTAL

INFORMATION ANALYSIS CENTER CONTRACT STATUS REPORT	AREA TITLE	NAME OF INFORMATION ANALYSIS CENTER Metals & Ceramics Information Center	OUTPUT UNITS PRODUCED	MANHOURS EXPENDED*			COSTS INCURRED			QUARTER ENDING — —	CUMULATIVE THRU May 78 — April 80
				PRO- FESSIONAL	NON-PRO- FESSIONAL	TOTAL	DIRECT	INDIRECT	TOTAL		
	1. ACQUISITION AND INPUT OF SOURCE INFORMATION			7,781	12,741	20,522	188,347	265,602	453,949		
	a. DOCUMENTS ACQUIRED		8111								
	b. DOCUMENTS REVIEWED		8111								
	c. DOCUMENTS CATALOGED		7263								
	2. TECHNICAL INQUIRY RESPONSES PROVIDED		430	2,486	1,212	3,698	52,990	68,034	121,024		34,656***
	3. BIBLIOGRAPHIC INQUIRY RESPONSES PROVIDED		112	—	—	—	—	—	—		—
	4. HANDBOOKS/DATA BOOKS COMPLETED			2,920	1,601	4,521	53,432	90,767	144,199		94,143***
	a. NEW CHAPTERS/PAGES COMPLETED		17/1441								
	b. REVISED CHAPTERS/PAGES COMPLETED		—								
	c. DATA SETS COMPILED		—								
	5. STATE-OF-THE-ART STUDIES COMPLETED		5	1,953	1,972	3,925	43,356	83,761	127,117		108,966***
	6. CRITICAL REVIEWS AND/OR TECHNOLOGY ASSESSMENTS COMPLETED		—	—	—	—	—	—	—		—
	7. CURRENT AWARENESS AND PROMOTION EFFORTS/ MARKETING			4,932	8,888	13,820	143,722	312,518	456,240		
	a. NUMBER NEWSLETTERS AND/OR ANNOUNCEMENTS PUBLISHED		57/55								
	b. NUMBER MEETINGS CONFERENCES ETC SUPPORTED		64								
	8. OTHER Special Studies/Tasks		15	13,240	4,957	18,197	211,182	600,334	811,516		1,045,972
	9. MANAGEMENT AND SUPPORT			3,647	4,357	8,004	125,590	171,872	297,462		
	10. UNASSIGNABLE INDIRECT COSTS			—	—	—	—	109,616	109,616		
	11. TOTAL			36,959	35,728	72,687	818,619	1,702,504	2,521,123		1,283,737

* An audit has corrected manhour data erroneously given in previous reports.

** Total billed income.

*** Actual incomes for 1st and 2nd years were \$83,087 and \$125,117, respectively.

APPENDIX B

ORGANIZATIONS SERVED BY MCIC (8th QUARTER)

APPENDIX B

TABLE B-1. ORGANIZATIONS SERVED BY MCIC
(Eighth Quarter)

Inquiry Number	Organization and Person	Bibliographic	Service Charge	No Charge
Industrial				
1700	Mr. R. Rader Cullen, Sloman, Centor, Grauer, Scott, and Rutherford Detroit, MI	X	X	
1709	M. E. Gimpler United Aircraft Products Forest, OH		X	
1710	Dr. M. Wallsheim EXE Corporation Brooklyn, NY	X	X	
1711	Mr. A. Dwyer Raytheon Sudbury, MA			X
1712	Mr. M. Cronin Mechanical Technology Latham, NY			X
1713	Dr. C. Marschall Battelle Columbus Columbus, OH	X	X	
1715	Mr. N. Lazaridis Inland Steel Research East Chicago, IN			X
1717	Mr. P. Stephen Battelle Columbus Columbus, OH	X		X
1718	Mr. G. Fuller Battelle Columbus Columbus, OH		X	

TABLE B-1. (Continued)

Inquiry Number	Organization and Person	Bibliographic	Service Charge	No Charge
Industrial (Continued)				
1719	Dr. D. Williams Battelle Columbus Columbus, OH	X		X
1720	Ms. N. Gries Cameron Iron Works Houston, TX			X
1721	Mr. H. Smallen Aerospace Corporation El Segundo, CA		X	
1722	Mr. B. Leis Battelle Columbus Columbus, OH	X	X	
1723	Mr. R. Kock ARDE Mahwah, NJ			X
1724	Dr. C. Cheng Science Applications Oak Brook, IL	X	X	
1725	Mr. D. Rife Lockheed Georgia Marietta, GA			X
1726	Mr. W. Connors Sundstrand Aviation Rockford, IL			X
1727	Mr. S. Tozłowski Protective Materials Company Seabrook, NY	X	X	
1729	Mr. R. Maringer Battelle Columbus Columbus, OH			X
1730	Mr. F. Larson Garrett/AiResearch Casting Torrence, CA	X		X

TABLE B-1. (Continued)

Inquiry Number	Organization and Person	Bibliographic	Service Charge	No Charge
Industrial (Continued)				
1731	Mr. G. Dormer Pfaudler Rochester, NY			X
1733	Mr. R. Buchheit Battelle Columbus Columbus, OH	X		X
1735	Mr. D. Smith IBM Endicott, NY			X
1736	Mr. D. Graves General Electric Schenectady, NY			X
1737	Ms. L. Kiersky AIRCO Murray Hill, NJ	X	X	
1738	Mr. A. Schmucker Freightline Corporation Portland, OR			X
1739	Mr. B. McIntosh Yamazaki Machinery Florence, KY			X
1741	Mr. J. Kissel Battelle Columbus Columbus, OH		X	
1742	Ms. J. Bookmeyer PPG Pittsburgh, PA			X
1743	Mr. P. Ruff Battelle Columbus Columbus, OH		X	
1744	Mr. H. Meieran O'Donnell & Associates Pittsburgh, PA			X

TABLE B-1. (Continued)

Inquiry Number	Organization and Person	Bibliographic	Service Charge	No Charge
Industrial (Continued)				
1745	Mr. P. Dembowski General Electric Schenectady, NY		X	
1746	Dr. Y. Lee Westinghouse Nuclear Energy System Pittsburgh, PA			X
1747	Mr. W. Sharp Connecticut Metallurgy Hartford, CT			X
1748	Mr. S. Campbell Consultant New Holland, PA	X		X
1749	Mr. D. Ventura Barry Controls Watertown, MA			X
1750	Ms. L. Malmfeldt Pacific Gas & Electric San Ramon, CA			X
1751	Mr. D. Stein Hughes Helicopter Culver City, CA			X
1752	Mr. E. Maxwell Huck/LA Division Carson, CA			X
1753	Mr. J. Staudt Lear Siegler Santa Ana, CA			X
1754	Mr. E. Kallil United Technologies/Chem. Sys. Div. Sunnyvale, CA			X
1755	Dr. I. Sekerciogli Battelle Columbus Columbus, OH	X		X

TABLE B-1. (Continued)

Inquiry Number	Organization and Person	Bibliographic	Service Charge	No Charge
Industrial (Continued)				
1756	Mr. J. McMahon Kings Ventures/Consultants Washington, D.C.			X
1760	Ms. H. Brown Kennecott Copper Lexington, MA			X
1762	Mr. D. Dohr Singer Kearfott Little Falls, NJ			X
1765	Mr. R. McDemus Carpenter Technology Corporation Reading, PA	X		X
1767	Mr. E. Flora Anamet Laboratory San Carlos, CA			X
1768	Mr. C. Meltzer RCA/Sarnoff Lab Princeton, NJ			X
Government				
1714	Mr. K. Perkins HUD Washington, D.C.	X		X
1716	Mr. A. Boyce Small Business Administration Atlanta, GA			X
1732	Mr. P. Smoot AMMRC Watertown, MA			X
1734	Lt. K. Shillito Kirtland AFB, NM			X

TABLE B-1. (Continued)

Inquiry Number	Organization and Person	Bibliographic	Service Charge	No Charge
Government (Continued)				
1740	Mr. R. Retter Naval Ship Weapons Command Dahlgreen, VA			X
1758	Mr. R. Kalkan Rock Island Arsenal Rock Island, IL			X
1763	Mr. M. Rosenfeld Naval Air Development Center Warminster, PA	X	X	
1769	Mr. P. Smoot AMMRC Watertown, MA			X
Academic				
1728	Prof. G. Memcoch University of Kansas Lawrence, KS			X
1757	Mr. P. Duletsky University of California/ Lawrence Livermore Lab Livermore, CA			X
Foreign				
1759	Mr. G. Nassef Alexandria University Alexandria, Egypt	X		X

APPENDIX C

SALES OF MCIC REPORTS, HANDBOOKS, AND SPECIAL REPORTS

Second Annual Sales — Tables C-1, C-2, C-3

Eighth Quarter Sales — Tables C-4, C-5, C-6

TABLE C-1. ANNUAL SALES OF MCIC TECHNICAL REPORTS (MAY 1, 1979 - APRIL 30, 1980)

FOR PERIOD 02/01/80 THRU 04/30/80

DOCUMENT	DOCUMENT TITLE	NUMBER SOLD (NTIS)	NUMBER SOLD (MCIC)	NUMBER SOLD (TOTAL)	NUMBER SOLD (CUMUL)
M501	DAMAGE TOLERANT DESIGN HANDBOOK	0	9	9	1,291
M501S1	1ST SUPP TO D-T-U HANDBOOK	0	9	9	812
M501S2	2ND SUPP TO D-T-U HANDBOOK	0	9	9	696
M302	TITANIUM ALLOYS HANDBOOK	6	14	20	1,097
M403	FORGING--EQUIP, MATLS, + PRACTICES	3	53	56	1,431
M304	MOBK ON MATLS FOR SUPERCONDUCTING MACH.	0	4	4	392
M304S1	1ST SUPP TO MOBK ON M-S-M	2	4	6	269
M304S2	2ND SUPP TO MOBK ON M-S-M	1	5	6	220
M305	SOVIET ALLOY HANDBOOK	0	6	6	644
M305S1	1ST SUPP TO SOVIET ALLOY MOBK	2	7	9	295
M306	SEM/TEM FRACTOGRAPHY HANDBOOK	2	7	9	917
M307V1	ENGRG PROP DATA ON CERAMICS-V1 NITRIDES	1	29	30	479
M307V2	ENGRG PROP DATA ON CERAMICS-V2 CARBIDES	0	93	93	99
M308	ELECTRON FRACTOGRAPHY HANDBOOK	3	5	8	427
M309V1	MOBK OF INTNL ALLOY COMP+DESIG.-V1 TI	5	23	28	418
M303V2	MOBK INTNL AL. COMP+DES- V2 SUPERALLOY	6	44	50	356
T Y P E T O T A L		31	321	352	9,843

C-1

TABLE C-2. ANNUAL SALES OF MCIC HANDBOOKS AND DATABOOKS (MAY 1, 1979 - APRIL 30, 1980)

FOR PERIOD 02/01/80 THRU 04/30/80

DOCUMENT	DOCUMENT TITLE	NUMBER SOLD (NTIS)	NUMBER SOLD (MCIC)	NUMBER SOLD (TOTAL)	NUMBER SOLD (CUMUL)
7101	EFF OF SURF COND ON MECH PROP TI+ALLOYS	2	3	5	975
7102	EFF SHOT PEEN ON IMP. FAT+STR CORR PROP	5	4	9	1,120
7203	NONTRADITIONAL MACHINING OF BERYLLIUM	1	0	1	237
7204	CRACK BEHAVIOR IN 06AC STEEL	0	2	2	398
7205	SYMP ON PROP OF ELECT DEP METALS	1	2	3	901
7206	IMPURITY EFFECTS IN BERYLLIUM	1	0	1	141
7207	OXIDATION OF FE-NI + COBALT BASE ALLOYS	0	3	3	596
7208	HOT CORROSION IN GAS TURBINES	6	2	8	638
7209	BIBLIO ON FIBERS + COMP MATLS 1969-72	3	8	11	652
7210	SUPERALLOYS-PROCESSING (CONF PROC.)	4	5	9	590
7211	BETA TITANIUM ALLOYS	2	5	7	327
7212	FRAC ANAL BY SCANNING ELEC MICROSCOPY	0	3	3	1,497
7313	ADV IN JOINING TECH - 60FS + BEYOND	4	0	4	781
7314	MATLS FOR USE IN AIRCRAFT GAS TURB ENG	4	2	6	661
7315	METALLURGY OF FUSION-WELD REPAIR	1	5	6	657
7316	TITANIUM CASTING TODAY	0	4	4	279
7319	PROC 72 TRI-SERV CONF ON CORROSION	0	0	0	364
7417	PROC 73 SYMP ELEC-DEP METAL SEL APPLI	3	4	7	404
7418	METAL IMPLANTS FOR ORTHO + CENTAL SURG	1	2	3	472
7420	PROPERTIES OF TEXTURED TITANIUM ALLOYS	1	5	6	229
7421	CERA PROSTH APPL-ORTH DENTAL+CARDIOV	4	1	5	235
7422	NONDESTRUCTIVE TESTING OF BERYLLIUM	1	0	1	90
7423	CORROSION OF METALS IN THE ATMOSPHERE	1	8	9	560
7424	AUTOMATION IN WELDING	0	0	0	279
7525	CRACKS AT STRUCTURAL HOLES	0	2	2	244
7526	TITANIUM INDUSTRY IN THE MID 70'S	0	5	5	337
7527	PROC 74 GAS TURB MATLS N MAR ENVIR CONF	0	3	3	280
7628	PROC + APPLI OF (EPL) URAN ALLOY PROD	0	4	4	90
7729	ANNOT BIBLIO SIL NIT FOR STRUC APPLI	0	0	0	191
7730	DISPERSION STRENGTHENING OF METALS	0	1	1	274
7731	LOW TEMP PROP SEL MATLS-BIBLIO W/DESCR	1	1	2	166
7732	EFF RAP HEAT PROP MATLS-BIBLIO W/DESCR	1	2	3	255
7733	PROC 76 TRI-SERV CONF ON CORROSION	1	1	2	184
7734	HOT ISOSTATIC PROCESSING	3	36	39	806
7835	RHEOCASTING	2	8	10	190
7836	PROC DARPA/NAVSEA CER GALTURB UEM	4	3	7	463
7837	CORROSION OF METALS IN MARINE ENVIRO	7	39	46	589
7838	BIBLIO ON FIBERS + COMPOSITE MATLS	0	46	46	231
7839	REVIEW METALL HI-STREN LOW-ALLOY STEEL	14	34	48	231
7940	TRI-SERV CORROSION CONF-78	7	18	25	136
7941	SILICON NITRIDE JIB	22	30	52	107
	T Y P E T O T A L	107	301	408	17,873

C-2

TABLE C-3. ANNUAL SALES OF MCIC SPECIAL REPORTS (MAY 1, 1979 - APRIL 30, 1980)

FOR PERIOD 02/01/80 THRU 04/30/80

DOCUMENT	DOCUMENT TITLE	NUMBER SOLD (NTIS)	NUMBER SOLD (MCIC)	NUMBER SOLD (TOTAL)	NUMBER SOLD (CUMUL)
ATC 1	AMRC BKS - SOLID TECH	0	3	3	77
ATC 2	AMRC BKS - CERAMICS FOR MI PERF APPL I	0	8	8	36
ATC 3	AMRC BKS - PHY MET URAN ALLOYS	0	13	13	23
ATC 4	AMRC BKS - ATC NO 4 - JOINING	0	10	10	273
ATC 5	AMRC BKS - CERAMICS FOR MI PERF APPL II	0	14	14	117
HELRG2	SURVEY ON MECH PROP ON RAPID HEATING	0	0	0	17
HELRG3	SURV ON MECH PROP ON RAPID HEAT HOBK	0	1	1	12
MTC 73	1978 MATERIALS TECHNOLOGY REPORT	0	2	2	250
SPEC	MISC REPORTS	0	0	0	112
SR7501	MATERIALS SHORTAGE WORKSHOP PROCEEDINGS	0	0	0	150
SR7606	WORKSHOP ON GOVT POLICIES + PROGRAMS	0	0	0	286
STC 76	1976 STRUCTURES TECHNOLOGY REPORT	0	0	0	351
	T Y P E T O T A L	0	51	51	1,704

N O T E : NTIS DOES NOT SELL THESE DOCUMENTS.

C-4

TABLE C-4. EIGHTH QUARTER SALES OF MCIC HANDBOOKS AND DATABOOKS (FEBRUARY 1 - APRIL 30, 1980)

FOR PERIOD 35/01/79 THRU 04/30/80

DOCUMENT	DOCUMENT TITLE	NUMBER SOLD (NTIS)	NUMBER SOLD (MCIC)	NUMBER SOLD (TOTAL)	NUMBER SOLD (CUMUL)
H301	DAMAGE TOLERANT DESIGN HANDBOOK	0	61	61	1,291
H301S1	1ST SUPP TO C-T-D HANDBOOK	0	65	65	812
H301S2	2ND SUPP TO C-T-D HANDBOOK	0	62	62	696
H302	TITANIUM ALLOYS HANDBOOK	17	107	124	1,097
H303	FORGING--EQUIP. MATLS. + PRACTICES	33	127	160	1,431
H304	HDBK ON MATLS FOR SUPERCONDUCTING MACH.	0	28	28	392
H304S1	1ST SUPP TO HDBK ON Y-S-M	9	26	35	269
H304S2	2ND SUPP TO HDBK ON Y-S-M	11	29	40	220
H305	SOVIET ALLOY HANDBOOK	0	27	27	644
H305S1	1ST SUPP TO SOVIET ALLOY HDBK	7	38	45	295
H306	SEM/TEM FRACTOGRAPHY HANDBOOK	14	94	108	917
H307V1	ENGRG PROP DATA ON CERAMICS-V1 NITRIDES	10	57	67	479
H307V2	ENGRG PROP DATA ON CERAMICS-V2 CARBIDES	0	93	93	99
H308	ELECTRON FRACTOGRAPHY HANDBOOK	12	82	94	427
H309V1	HDBK OF INTNL ALLOY COMP+DESIG.-V1 TI	16	106	122	418
H309V2	HDBK INTNL AL. COMP+DES- V2 SUPERALLOY	27	206	233	356
	T Y P E T O T A L	156	1,208	1,364	9,843

TABLE C-5. EIGHTH QUARTER SALES OF MCIC TECHNICAL REPORTS (FEBRUARY 1 - APRIL 30, 1980)

FOR PERIOD 05/01/79 THRU 04/30/80

DOCU- MENT	DOCUMENT TITLE	NUMBER SOLD (NTIS)	NUMBER SOLD (MCIC)	NUMBER SOLD (TOTAL)	NUMBER SOLD (CUMUL)
7101	EFF OF SURF COND ON MECH PROP TI+ALLOYS	11	29	40	975
7102	EFF SHOT PEEN ON IMP, FAT+STR CORR PROP	22	43	65	1,128
7203	NONTRADITIONAL MACHINING OF BERYLLIUM	5	1	6	237
7204	CRACK BEHAVIOR IN 06AC STEEL	2	7	9	398
7205	SYMP ON PROP OF ELECT DEP METALS	8	8	16	901
7206	IMPURITY EFFECTS IN BERYLLIUM	3	7	10	141
7207	OXIDATION OF FE-NI + COBALT BASE ALLOYS	2	30	32	596
7208	HOT CORROSION IN GAS TURBINES	13	24	37	638
7209	BIBLIO ON FIBERS + COMP MATLS 1969-72	7	25	32	652
7210	SUPERALLOYS-PROCESSING (CONF PROC.)	11	26	37	590
7211	3ETA TITANIUM ALLOYS	5	14	19	327
7212	FRAC ANAL BY SCANNING ELEC MICROSCOPY	4	16	20	1,497
7313	ADV IN JOINING TECH - 60FS + BEYOND	18	25	43	781
7314	MATLS FOR USE IN AIRCRAFT GAS TURR ENG	8	26	34	661
7315	METALLURGY OF FUSION-WELD REPAIR	15	28	43	657
7316	TITANIUM CASTING TODAY	6	17	23	279
7319	PROC 72 TRI-SERV CONF ON CORROSION	4	8	12	364
7417	PROC 73 SYMP ELEC-DEP METAL SEL APPLI	8	11	19	404
7418	METAL IMPLANTS FOR ORTHO + DENTAL SURG	6	5	11	472
7420	PROPERTIES OF TEXTURED TITANIUM ALLOYS	2	17	19	229
7421	CERA PROSTH APPL-ORTH DENTAL+CARDIOV	8	5	13	235
7422	NONDESTRUCTIVE TESTING OF BERYLLIUM	6	3	9	90
7423	CORROSION OF METALS IN THE ATMOSPHERE	13	43	56	560
7424	AUTOMATION IN WELDING	5	11	16	279
7525	CRACKS AT STRUCTURAL HOLES	0	17	17	244
7526	TITANIUM INDUSTRY IN THE MID 70'S	0	24	24	337
7527	PROC 74 GAS TURB MATLS N MAR ENVIR CONF	0	11	11	288
7628	PROC + APPLI OF REPL URAN ALLOY PROD	2	19	21	90
7729	ANNOOT BIBLIO SIL NIT FOR STRUC APPLI	3	3	6	191
7730	DISPERSION STRENGTHENING OF METALS	9	23	32	274
7731	LOW TEMP PROP SEL MATLS-BIBLIO W/DESCR	5	10	15	166
7732	EFF RAP HEAT PROP MATLS-BIBLIO W/DESCR	10	24	34	295
7733	PROC 76 TRI-SERV CONF ON CORROSION	7	20	27	184
7734	HOT ISOSTATIC PROCESSING	21	134	155	806
7935	WMECCASTING	12	34	46	190
7936	PROC DIRPA/NAWSEA CER GASTURB DEM	15	69	84	463
7937	CORROSION OF METALS IN MARINE ENVIRO	36	229	265	589
7938	BIBLIO ON FIBERS + COMPOSITE MATLS	0	111	111	231
7939	REVIEW METALL HI-STREN LOW-ALLOY STEEL	19	211	230	231
7940	TRI-SERV CORROSION CONF-78	13	122	135	136
7941	SILICON NITRIDE FIB	23	84	107	107
	T Y P E T O T A L	367	1,574	1,941	17,673

TABLE C-6. EIGHTH QUARTER SALES OF MCIC SPECIAL REPORTS (FEBRUARY 1 - APRIL 30, 1980)

FOR PERIOD 05/01/79 THRU 04/30/80

DOCUMENT	DOCUMENT TITLE	NUMBER SOLD (NTIS)	NUMBER SOLD (MCIC)	NUMBER SOLD (TOTAL)	NUMBER SOLD (CUML)
AMTC 1	AMRC BKS - SOLID TECH	0	77	77	77
AMTC 2	AMRC BKS - CERAMICS FOR HI PERF APPL	0	36	36	36
AMTC 3	AMRC BKS - PHY MET URAN ALLOYS	0	23	23	23
AMTC 4	AMRC BKS - AMTC NO 4 - JOINING	0	117	117	273
AMTC 5	AMRC BKS - CERAMICS FOR HI PERF APPL	0	83	83	117
HELRG2	SURVEY ON MECH PROP ON RAPID HEATING	0	11	11	17
HELRG3	SURVEY ON MECH PROP ON RAPID HEAT HDBK	0	12	12	12
MTIC 79	1978 MATERIALS TECHNOLOGY REPORT	0	5	5	250
SPEC	WISC REPORTS	0	112	112	112
SQ7501	MATERIALS SHORTAGE WORKSHOP PROCEEDINGS	0	2	2	150
SR7606	WORKSHOP ON GOVT POLICIES + PROGRAMS	0	0	0	286
STC 76	1976 STRUCTURES TECHNOLOGY REPORT	0	0	0	351
	T Y P E T O T A L	0	478	478	1,704

NOTE: NTIS DOES NOT SELL THESE DOCUMENTS.

APPENDIX D

**TECHNICAL PERSONNEL ASSOCIATED WITH
MCIC PRODUCTS & SERVICES (8th QUARTER)**

APPENDIX D

**TECHNICAL PERSONNEL ASSOCIATED WITH
MCIC PRODUCTS & SERVICES (8th QUARTER)**

<u>Personnel</u>	<u>Titles</u>	<u>Area of Specialization</u>
INQUIRIES		
Bartlett, E. S.	Staff Metallurgist	Superalloys, Refractory Metals
Berry, W. E.	Staff Scientist	Corrosion
Campbell, J. E.	Staff Engineer/Consultant	Fracture Mechanics
Deel, O. L.	Staff Metallurgist	Fatigue Properties
Endebrock, R. W.	Information Manager	Information Handling
Falkenbach, G. J.	Staff Metallurgist	Nondestructive Testing
Gubiotti, R. A.	Information Specialist	Information Handling
Gurklis, J. A.	Staff Scientist	Surface Finishing Processes
Hucek, H. J.	Information Manager	Information Handling
Jaske, C. E.	Staff Scientist	Fatigue Properties
Johnson, D. M.	Information Specialist	Contracts
Lynch, J. F.	MCIC Associate Manager	Information Handling
Maykuth, D. J.	Staff Scientist	Cobalt Technology
Pestel, H. C.	Information Manager	Information Handling
Roach, D. B.	Staff Metallurgist	Stainless Steel Technology
Ullrich, O. A.	Staff Metallurgist	Nondestructive Testing
VanEcho, J. A.	Staff Metallurgist	Creep Properties
Wahll, M. J.	Staff Metallurgist/Consultant	Foreign Alloy Specifications

CURRENT AWARENESS BULLETIN

Bansal, G. K.	Staff Scientist	Ceramics
Bartlett, E. S.	Staff Metallurgist	Superalloys, Refractory Metals
Berry, W. E.	Staff Scientist	Corrosion
Boulger, F. W.	Staff Engineer/Consultant	Metalworking
Campbell, J. E.	Staff Engineer/Consultant	Steel Process & Properties, Testing
Endebrock, R. W.	Staff Engineer	CAB Manager/Editor
Fiorentino, R. J.	Staff Metallurgist	Composites
Gurklis, J. A.	Staff Scientist	Surface Finishing Processes

PersonnelTitlesArea of Specialization**CURRENT AWARENESS BULLETIN
(Continued)**

Johnson, D. M.	Information Specialist	Contract Awareness
Marcum, C. L.	Senior Technical Typist	Manuscript Preparation
Tackett, G. M.	CAB Typist/Layout	Manuscript Preparation
Ward, J. S.	Staff Draftsperson	Manuscript Preparation
Williams, D. N.	Staff Scientist	Light Metals Technology
Wood, R. A.	Staff Metallurgist	Titanium Technology

TECHNICAL REPORTS

Carbonara, R. S.	Staff Engineer	Material Analysis
McCoy, L.	Staff Engineer	Materials Application
Jaske, C. E.	Staff Engineer	Fatigue of Metals
Payer, J. H.	Staff Engineer	Corrosion
Noton, B. R.	Staff Scientist	Composite Materials
Hauser, D.	Staff Engineer	Welding
Duckworth, W. H.	Staff Engineer	Ceramics

HANDBOOKS/DATABOOKS

Hucek, H. J.	Staff Metallurgist	Mechanical Properties and Physical Metallurgy of Ferrous Metals
Maykuth, D. J.	Staff Engineer	Physical Metallurgy and High-Temp. Metallurgy
Thompson, J. K.	Staff Engineer	Mechanical and Properties

MANTECH JOURNAL

Spalsbury, W. A.	Researcher	Information Analysis
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ANNUAL REPORT OF THE

METALS & CERAMICS INFORMATION CENTER

H. Mindlin, J. F. Lynch, Metals & Ceramics
Information Center, Battelle-Columbus,
Columbus, Ohio

Technical Report AMMRC TR 80-33

July 1980

Contract DLA900-78-C-1715

May 1, 1979, to April 30, 1980

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Technical Information Center
DoD Information Analysis
Center

Metals

Ceramics

Composites

Information retrieval

This report reviews the continuing operations and development of the Metals and Ceramics Information Center for the period of May 1, 1979, through April 30, 1980. Activity and growth of the Center are discussed in terms of the major work areas: Information, Operations, Products and Services, Service-Charge Program, Marketing, and Management. Future plans for the Center also are included.

Army Materials and Mechanics Research Center
Watertown, Massachusetts 02172

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